



## **SAEED MDCAT** **PHYSICS NMDCAT**

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### TOPIC WISE TEST (UNIT-3)

#### **TOPICS:**

##### **✓ Rotational and Circular Motion**

**Q. 1** A particle is moving along a circular path with uniform speed. What is the angle between instantaneous velocity and acceleration?

A.  $45^\circ$       B.  $0^\circ$   
C.  $180^\circ$       D.  $90^\circ$

**Q. 2** The centripetal force required to keep the body in circular path is F. What would be centripetal force if radius becomes two times (keeping linear speed constant)?

A.  $2F$       B.  $F/2$   
C.  $4F$       D.  $F/4$

**Q. 3** The force required to move a body of mass 1kg with velocity  $10\text{ms}^{-1}$  along a circular path of radius 0.1m is

A. 100N      B. 1000 N  
C. 1N      D. Zero

**Q. 4** If a particle moves in a circle, making equal angles in equal time its velocity

A. Remains constant      B. Changes in direction only  
C. Changes in magnitude only      D. Changes both in magnitude and direction

**Q. 5** A particle moving in the a horizontal circle with constant angular velocity will have

A. Constant linear momentum but varying energy  
B. Constant energy but varying linear momentum  
C. Neither linear momentum nor energy constant  
D. Both speed and linear velocity constant

**Q. 6** A string can withstand a tension of  $25\text{N}$ . What is the greatest speed at which a body of mass 1 kg can be whirled in a horizontal circle using 1m length of the string?

A.  $10\text{ms}^{-1}$       B.  $7.5\text{ms}^{-1}$   
C.  $5\text{ms}^{-1}$       D.  $2.5\text{ms}^{-1}$

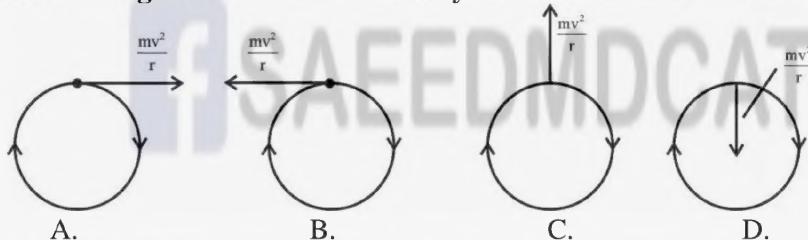
**Q. 7** A particle is moving along a circular path of radius 'R' with uniform speed of  $1\text{ ms}^{-1}$ , the time taken to complete one rotation is \_\_\_\_\_ sec.

A.  $\pi R$       B.  $\frac{\pi R}{2}$   
C.  $2\pi R$       D.  $4\pi R$

**Q. 8** If the radius of the circular path of a particle is quadrupled without changing its frequency of rotation, then centripetal force on it is

A. halved      B. doubled  
C. quadrupled      D. unchanged

**Q. 9** A spherically-shaped satellite of mass m and radius r is moving around the earth in a circular orbit of radius r with constant speed v. Which of the following represents the force acting on the satellite as seen by an observer on the earth?



**Q. 10** Which of the following statements is false for a particle moving in a circle with a constant angular speed?









**Q. 50 The angle described in 2sec by an object rotating at a rate of 600 rpm is**

- A.  $20\pi \text{ rad}$
- B.  $40\pi \text{ rad}$
- C.  $5\pi \text{ rad}$
- D. zero

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## Chemistry

C	11 B	21 B	31 B	41 D
A	12 B	22 C	32 D	42 D
C	13 B	23 D	33 C	43 D
B	14 D	24 B	34 C	44 B
D	15 C	25 A	35 B	45 B
D	16 C	26 C	36 B	46 A
C	17 A	27 C	37 B	47 C
C	18 A	28 B	38 C	48 B
C	19 D	29 A	39 B	49 B
A	20 B	30 B	40 D	50 D

## Physics

D	11 B	21 B	31 B	41 D
B	12 C	22 D	32 A	42 B
B	13 D	23 B	33 D	43 C
B	14 C	24 B	34 D	44 B
B	15 C	25 B	35 C	45 C
C	16 A	26 B	36 C	46 C
C	17 B	27 D	37 B	47 A
D	18 B	28 D	38 B	48 A
D	19 B	29 B	39 B	49 D
B	20 A	30 B	40 A	50 B

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